

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

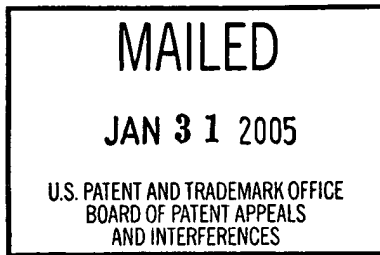
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte MICHIO KOMODA

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Appeal No. 2004-1839  
Application No. 09/921,604

ON BRIEF

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Before HAIRSTON, KRASS, and SAADAT, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 20 and 21. Other pending claims, 2-19, have been indicated by the examiner as being directed to allowable subject matter and are not on appeal before us.

The invention is directed to a method of modifying a circuit such that a driving circuit for driving a wire determined to have glitch errors therein is replaced with another driving circuit having a higher driving ability.

Independent claim 20 is reproduced as follows:

20. A circuit modification method comprising the steps of:

determining whether a glitch error is caused in said predetermined wire by an aggressor comprised of one or more other wires;

when determining that a glitch error is caused in said predetermined wire by an aggressor, replacing a driving circuit for driving said predetermined wire with another one having a higher driving ability than the driving circuit.

The examiner relies on the following references:

|                      |           |  |
|----------------------|-----------|--|
| Tam                  | 5,900,759 | May 04, 1999                           |
| Young et al. (Young) | 6,378,109 | Apr. 23, 2002<br>(filed Jun. 30, 2000) |

Claims 20 and 21 stand rejected under 35 U.S.C. §103 as unpatentable over Young. While not recited in the statement of rejection, the examiner cites Tam merely as an example of increasing the size of a driver by increasing the size of a buffer.

Reference is made to the briefs and answer for the respective positions of appellant and the examiner.

#### OPINION

In rejecting claims under 35 U.S.C. §103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the

examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teachings, suggestions or implications in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1040, 228 USPQ 685, 687 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531

F.2d 1048, 1051, 189 USPQ 143, 146-147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR 1.192 (a)].

It is the examiner's position that Young discloses the claimed subject matter but for replacing a driving circuit for driving a victim wire with another one having a higher driving ability. The examiner contends, however, that it was well known to size a driver/buffer up or down, and that it would have been obvious to replace one driver with another driver as this would equally increase drivability and eliminate violations of crosstalk noise or glitch error.

For his part, appellant argues that Young discloses the elimination of crosstalk by either (a) changing the wire spacing or (b) inserting repeaters in the victim's signal, but nothing therein suggests "replacing" a driving circuit with another one. Thus, contends appellant, Young changes wire spacing, by placing wires further apart to decrease interference therebetween, and/or "adds" to the existing circuitry by inserting repeaters, but neither increasing wire spacing nor "adding" repeaters is the same as "replacing" drivers, as claimed.

The examiner counters that modifying a circuit by inserting repeaters/buffers “is equal” to modifying a circuit by replacing one driver with another.

In responding to appellant’s arguments,, the examiner alleges that inserting repeaters/buffers into a circuit, as done by Young, increases the size of the modified driver circuit. In order to buttress this allegation, the examiner cites Tam for a showing that increasing the size of a driver is achieved by increasing the size of a buffer, citing column 3, lines 22-34, of Tam, for a disclosure of “increasing the size of the output buffer” as an example of one of many designs for reducing the effects of glitching.

Normally, we would not consider the Tam reference because there would appear to be no reason for the examiner failing to include a reference relied on in the statement of the rejection. In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970). However, based on appellant’s arguments directed to the Tam reference, it is clear that appellant was aware of the examiner’s reliance thereon and was not prejudiced in any way in having the examiner rely on this reference in the manner applied. Accordingly, we will treat the rejection as relying on Young and Tam.

Claim 20 clearly requires “replacing” a driving circuit with “another one.” Both appellant and the examiner agree that Young “adds,’ or inserts, another circuit/buffer into the circuit, but does not physically “replace” one circuit/buffer with one, single,

other driving circuit. Yet, it is the examiner's position that the addition of another buffer in Young in order to increase driving ability is equivalent to replacing a driving circuit with a higher driving ability circuit. Appellant takes issue with this analysis, arguing, at page 2 of the reply brief, that the examiner is illogically contending that "when an effect (i.e., driving ability increases) occurs by a well known method, another method which results in the same effect is therefore also well known."

It appears that appellant is arguing that just because two methods reach the same result, this does not make one of the methods, per se, obvious over the other. With this general statement, we agree. Expedients which are functionally equivalent to each other are not necessarily obvious in view of one another. Equivalency is not a test for obviousness. In re Scott, 323 F.2d 1016, 1019, 139 USPQ 297, 299 (CCPA 1963); In re Flint, 330 F.2d 363, 367, 141 USPQ 299, 302 (CCPA 1964).

However, in the instant case, we view the examiner's position as contending that if one has a driving circuit A and it is "replaced" with a driving circuit B, having a higher driving ability than A (which is what is claimed), this is no different than the "addition" of a driving circuit C, to driving circuit A, which results in a higher driving ability, because the circuit which now has both driving circuits A and C can be said to have had driving circuit A "replaced" with the driving circuit combination A/C.

Since the instant claims require “replacing a driving circuit...with another one having a higher driving ability than the driving circuit” and, broadly, this is what would essentially occur *via* the “addition” of another driving circuit, the instant claimed subject matter would appear to be met.

The question here, as we see it, is whether either of the references suggests the replacement, or addition, of “driving circuits.” Tam seems to focus on a “buffer” while Young focuses on “repeaters.”

Tam discloses minimizing glitches by “increasing the size of the output buffer,” but the examiner has offered no evidence that equates Tam's output buffer to the claimed “driving circuit.” Moreover, appellant challenges the disclosure of a “driving circuit” by Tam, at page 2, line 2, of the reply brief, stating that “[n]owhere in Tam does Tam show, teach or suggest any drive circuit.” Since the examiner has not provided evidence to the contrary, we are constrained to agree with appellant that Tam's output buffer is not a “driving circuit,” as claimed.

We find otherwise with regard to the Young disclosure. The addition of repeaters to a circuit in order to eliminate crosstalk noise, in Young, appears to act as an addition of a “drive circuit” and appellant does not appear to deny this.

Appellant does argue, at page 7 of the principal brief, for example, that nothing in Young teaches or suggests “replacing a driving circuit as claimed” and that “insertion of buffers/repeaters means that additional circuits are added to the existing circuitry.” Appellant also argues thereat that Young’s spacing wires further apart is “not the same as replacing a driving circuit.” Accordingly, we find it telling that appellant stresses the claimed “replacement” of a driving circuit as patentably distinct from the addition of a buffer/repeater, but does not stress or argue that buffers/repeaters, e.g., the repeaters of Young, are different from the claimed drive circuits. None of appellant’s arguments are directed to Young not disclosing or suggesting “drive circuits” and, it would almost appear from such lack of argument in the briefs, and the acknowledgment (principal brief-page 7) that the instant invention is an improvement over Young and that buffers were known to be inserted in the circuit but that this increased the number of elements, that appellant understands, as did the examiner, that the repeaters of Young do, in fact, constitute “driving circuits,” as claimed.

In fact, it is apparent from appellant’s arguments that appellant is contending only that the “replacement,” rather than the “addition,” of a driving circuit allegedly distinguishes the instant claimed invention over the prior art of Young. For the reasons supra, we cannot agree. As an example, if an additional resistor of equal value is



placed in series with an original resistor in a circuit, doubling the total resistance, we do not see how, instead, replacing the original resistor with one of double the original value, is unobvious thereover. Note that such an example has particular relevance since even a simple resistor may be considered a "driving circuit," as broadly claimed. Similarly, if adding a driving circuit to the original driving circuit in Young produces a desirable result, it is not considered unobvious, within the meaning of 35 U.S.C. §103, to, instead, "replace" the original driving circuit with one having the driving power equal to the power of the combination of the two driving circuits that would be employed in Young to achieve that same result.

We note, again, that appellant does not appear to challenge the disclosure of such driving circuits by Young. Accordingly, we accept the finding by the examiner that the repeaters of Young are the type of driving circuits claimed by appellant.

Since appellant has not convinced us of any error in what we view as the examiner's prima facie case of obviousness with regard to the instant claimed subject matter, we will sustain the rejection of claims 20 and 21 under 35 U.S.C. §103.


The examiner's decision rejecting claims 20 and 21 under 35 U.S.C. §103 is affirmed.


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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a) (1) (iv).

AFFIRMED

  
KENNETH W. HAIRSTON  
Administrative Patent Judge


 ) BOARD OF PATENT  
 ERROL A. KRASS ) APPEALS  
 Administrative Patent Judge ) AND  
 ) INTERFERENCES

  
MAHSHID D. SAADAT  
Administrative Patent Judge

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